

STATE OF KANSAS  
PUBLIC WATER SUPPLY  
ANNUAL COMPLIANCE REPORT 2000



JULY 2001

BILL GRAVES, GOVERNOR  
Kansas Department of Health and Environment  
Clyde Graeber, Secretary  
Ronald Hammerschmidt, Director, Division of Environment  
Karl W. Mueldener, Director, Bureau of Water  
Bureau of Water  
1000 SW Jackson - Suite 420  
Topeka, KS 66612-1367  
(785) 296-5514

## TABLE OF CONTENTS

I.	Introduction .....	Page 4
II.	Public Water Supply Systems .....	Page 4
III.	Regulatory Programs .....	Page 9
	Compliance and Enforcement	
IV.	Total Coliform. ....	Page 10
	Compliance and Enforcement	
V.	Phase II/V. ....	Page 13
	V(a) Asbestos .....	Page 14
	Asbestos Monitoring Results	
	V(b) Nitrate/nitrite .....	Page 15
	Nitrate Monitoring Results	
	Compliance and Enforcement	
	V(c) Inorganic Chemicals .....	Page 17
	Ioc Monitoring Frequency	
	Ioc Monitoring Results	
	V(d) Volatile Organic Chemicals .....	Page 19
	Voc Monitoring Results	
	V(e) Synthetic Organic Compounds .....	Page 20
	Soc Monitoring Frequency	
	Soc Monitoring Waiver	
	Soc Monitoring Results	
	Unregulated and Other Contaminants	
	V(f) MTBE .....	Page 23
VI.	Lead and Copper .....	Page 24
	Lead and Copper Monitoring Results	
VII.	Disinfection By-products .....	Page 25
	Monitoring Results for THMs	
VIII.	Surface Water Treatment .....	Page 26
	Surface Water Monitoring Results	

IX.	Radionuclides . . . . .	Page 28
	Monitoring Results for Radionuclides	
X.	Consumer Confidence Reports (CCR) . . . . .	Page 29
XI.	Summary . . . . .	Page 30

## APPENDIXES

Appendix A . . . . .	Page 34
Violation Table	
Appendix B . . . . .	Page 48
MCL Violations	
Appendix C . . . . .	Page 59
List of KDHE Contacts	

## **I. INTRODUCTION**

The **Kansas Department of Health and Environment (KDHE)** is charged with protecting and improving the health and environment of Kansans through the wise stewardship of resources. To achieve this, KDHE's Bureau of Water, Public Water Supply Section is responsible for regulating all public water supply systems in the state and assisting them in providing safe potable water to the people of Kansas. There are approximately 1,100 public water supply systems in Kansas, consisting of cities, rural water districts, and privately owned systems. These water systems serve small towns up to a city of more than 300,000 persons.

This report is a summary of Kansas water systems compliance with drinking water regulations for calendar year 2000. Included in this report are all violations of the maximum contaminant levels (**MCL**), treatment techniques, and monitoring requirements. This report has been prepared by KDHE to inform the general public of the quality of drinking water in Kansas and to comply with the federal **Safe Drinking Water Act (SDWA)**.

Previous reports summarizing Kansas drinking water quality for calendar years 1997, 1998 and 1999 are available at [www.kdhe.state.ks.us](http://www.kdhe.state.ks.us).

## **II. PUBLIC WATER SUPPLY SYSTEMS**

In the State of Kansas, a public water system (water systems) is defined by **Kansas Statute (K.S.) 65-162a** and **Kansas Administrative Regulation (K.A.R.) 28-15-11(a)** as a *“system for delivery to the public of piped water for human consumption that has at least 10 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.”* These systems are regulated by KDHE to assure citizens are supplied safe drinking water.

All water systems are required by state regulation (**K.A.R. 28-15-18(a)**) to be operated and maintained by personnel that are properly trained and certified. Properly trained operators are a critical component in assuring safe drinking water to the public. For this purpose, KDHE administers an operator certification program.

During 2000, there were 1,098 water systems serving water in Kansas. These water systems served approximately 2.5 million Kansas residents in addition to the transient population visiting or traveling through the state.

Water systems are classified into two categories; community or non-community water systems. The majority of water systems are community water systems. Community water systems serve a year-round residential population. Non-community water systems serve non-residential populations.

Non-community water systems can either be transient or non-transient. Transient non-community water systems serve different people each day. Non-transient non-community water systems serve the same people each day. Table 1, below, summarizes the three types of water systems. Figure 1, on the following page, shows the types and numbers of systems in operation during 2000.

**TABLE 1.**  
**TYPES OF PUBLIC WATER SUPPLY SYSTEMS**

1. **COMMUNITY** - *Same residential consumers every day.*  
e.g.: towns, mobile home/trailer parks, rural water districts, subdivisions.
2. **TRANSIENT NON-COMMUNITY** - *Different non-residential consumers every day.*  
e.g.: motels, parks, airports, campgrounds, truck-stops.
3. **NON-TRANSIENT NON-COMMUNITY** - *Same non-residential consumers every day.*  
eg.: schools, day care facilities, industrial or manufacturing facilities

Water systems obtain water from two sources: **groundwater (GW)** or **surface water (SW)**. Some water systems obtain water from both groundwater and surface water. (Figure 2)

Table 2 and Figure 1 on the following page, show the three types of water systems, the number of systems in each type, the number of systems using groundwater, surface water, or a combination of both, and the total population served by each water system type. Water systems that use both surface and groundwater are governed by surface water regulations.

**TABLE 2.**

**SUMMARY OF PUBLIC WATER SUPPLY SYSTEMS IN KANSAS**

TYPE OF WATER SYSTEM	GW	SW	GW/SW	TOTAL(%)	POPULATION
Community Public Water Systems	569	304	49	922 (84%)	2,429,156
Non-Community-Transient Water Systems	99	5	3	107 (10%)	1,619
Non-Community-Non-transient Water Systems	67	1	1	69 (6%)	26,046
TOTAL	735	310	53	1,098 (100%)	2,456,821

The following three figures shows the types, sources and population served by the different sources of water.

**FIGURE 1.**

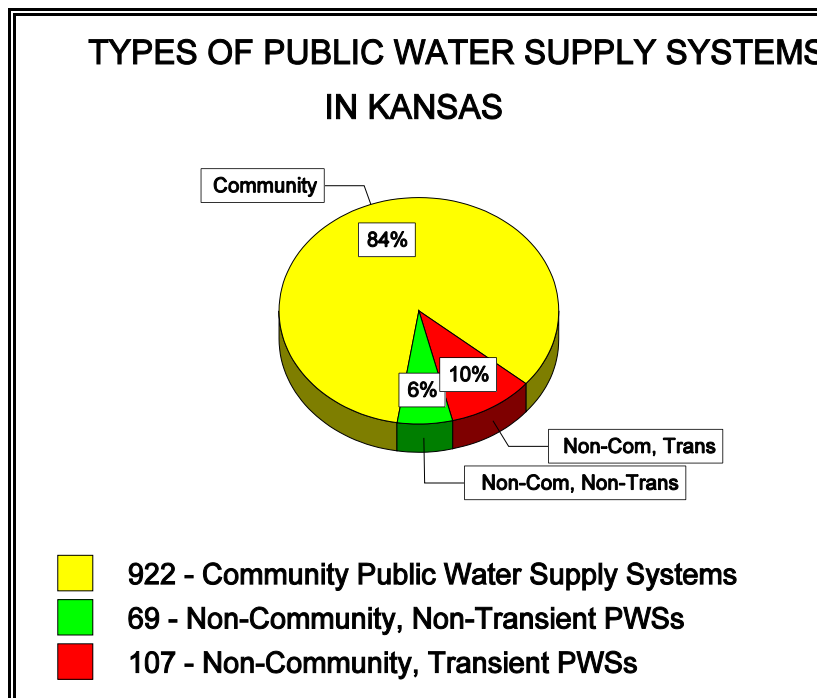


Figure 2. shows the numbers and percentages of systems using groundwater, surface water, or a combination of both.

**FIGURE 2.**

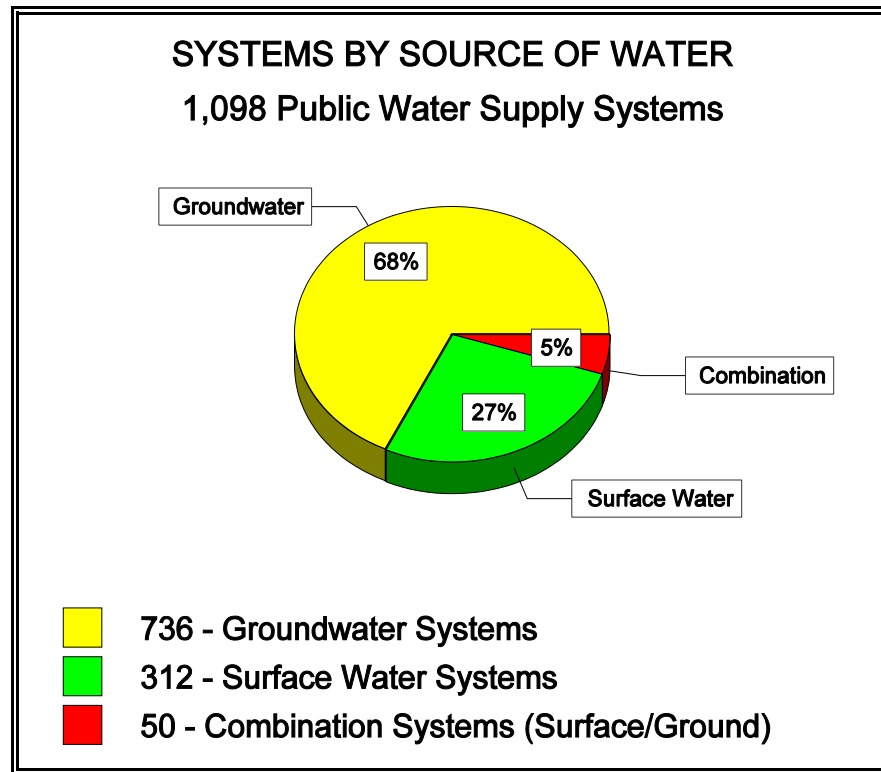
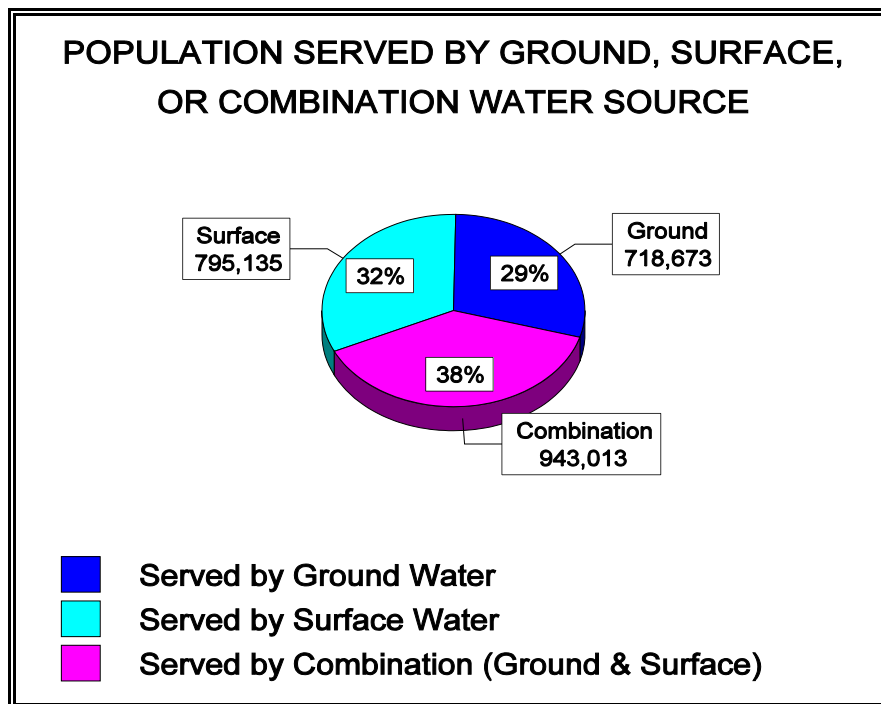


Figure 3. shows the resident population for all water systems served by groundwater, surface water, or a combination of both sources. These numbers include systems purchasing surface or groundwater from other water systems.

**FIGURE 3.**



### **III. REGULATORY PROGRAMS**

To help ensure good drinking water quality, several regulatory programs have been developed and implemented by KDHE. These programs monitor water quality in several different areas, ranging from microbiological organisms to inorganic and organic chemicals and radionuclides.

Kansas regulations establish maximum permissible levels for certain drinking water contaminants.



---

These levels are known as **maximum contaminant levels**. In some situations, regulations also require application of minimum water **treatment techniques (TT)**.

To verify compliance with the MCLs and treatment techniques, regulations require water systems to regularly monitor and report to KDHE their water quality parameters. These requirements help to assure that all water systems provide safe drinking water for human consumption.

## **COMPLIANCE AND ENFORCEMENT**

One of KDHE's objectives is to assist water systems in complying with all state and federal drinking water regulations.

The department attempts to use technical assistance rather than formal enforcement action to return water systems to compliance. When necessary, enforcement action is administered according to an escalation policy. The first step is to notify the water system by mail that a violation occurred. If three violations occur within any twelve month period, a directive is sent to the water system. If violations continue then either a Consent Order or an Administrative Order, with or without a monetary fine, may be issued.

The KDHE staff are available to assist water systems with regulatory concerns, and technical questions, and will refer the systems to third party technical assistance providers as appropriate.

KDHE **has not** issued any variances or exemptions from the SDWA requirements to any water system and has not received any request for variances or exemptions from any water system. All water systems are expected to comply with all drinking water regulations and to perform public notice if violations occur.

---

Current regulations administered by KDHE address the following areas of drinking water contaminants:

- <    **TOTAL COLIFORM BACTERIA**
- <    **PHASE II/V CHEMICALS**
- <    **LEAD AND COPPER**
- <    **DISINFECTION BY-PRODUCTS**
- <    **SURFACE Water TREATMENT**
- <    **RADIONUCLIDES**

#### **IV. TOTAL COLIFORM BACTERIA**

Water serves a very important role in maintaining health since it can be a common medium for transmitting diseases. Since the discovery of the “germ theory of disease” in the late 1800's, the importance of pathogen-free water has been better understood and appreciated. For this reason methods of disinfecting water have been developed. The most common method used today for disinfecting water is chlorination. Chlorination of drinking water has been practiced since the early nineteen hundreds.

In Kansas, water systems are required by state regulation K.A.R. 28-15-19(a) to disinfect all drinking water delivered to the public. To help evaluate the effectiveness of the disinfection method employed and determine microbiological quality, all systems are required by state regulation (K.A.R. 28-15-14) to submit monthly water samples for total coliform bacteria testing. Total coliform testing is used as an indicator of the possible presence of other bacteriological contaminants. Systems can choose to have this bacteriological testing of their water performed by KDHE's microbiology laboratory or a state certified private laboratory.

Water systems are required to collect a minimum of two and up to as many as 180 water samples each month based on their population, source and previous sample results.

A summary of the results of approximately 40,000 water samples collected and analyzed for coliform bacteria during 2000 is presented in Table 3.

TABLE 3.

SUMMARY OF BACTERIOLOGICAL MONITORING RESULTS -2000

QUARTER COLLECTED	NEGATIVE SAMPLES	COLIFORM POSITIVE	FECAL POSITIV E	INVALID SAMPLES	TOTAL QUARTERLY TOTALS
First Quarter Samples:	9066	44	4	174	9288
Second Quarter Samples:	9232	95	13	262	9602
Third Quarter Samples:	9386	135	23	30	9804
Fourth Quarter Samples:	9270	54	9	308	9641
Total Samples for 2000:	36,954	328	49	1,004	38,335

Key: QUARTER = Three month period; four quarterly periods in one year.  
NEGATIVE = Samples with no coliform bacteria present.  
COLIFORM POSITIVE= Samples with coliform bacteria present. (does not include fecal coliform)  
FECAL POSITIVE= Samples with fecal coliform bacteria present.  
INVALID = Samples not analyzed (too old, excessive chlorine, insufficient sample volume, empty, lost in mail, excess growth).

## COMPLIANCE AND ENFORCEMENT

Water systems that failed to collect any of the required water samples within the monthly compliance period were assessed a *routine monitoring violation*. When a water sample tests positive for coliform bacteria, water system are required to collect three repeat samples (also called check samples). If the water system failed to collect these repeat (check) samples, the system was then assessed a *repeat monitoring violation*. Both of these monitoring violations require the system to issue public notice by publishing the violation notice in a local newspaper of general circulation.

The system could have incurred a **maximum contaminant level (MCL)** violation if a number of water samples tested positive for total coliform, or the system could have incurred a more serious acute MCL violation if fecal coliform or E. coli were found along with the total coliform positive samples. In both cases, the system are required to notify the public of the violation by publication of the violation notice in a local newspaper of general circulation. For acute MCL violations, systems are required to provide notices to radio and television stations within 72 hours of learning of the violation.

A summary of all monitoring and MCL violations during 2000 is presented in Table 4.

**TABLE 4.**  
**SUMMARY OF MONITORING VIOLATIONS AND**  
**COLIFORM MCL VIOLATIONS IN 2000**

TYPE OF VIOLATION	TOTAL # OF VIOLATIONS	# OF SYSTEMS IN VIOLATION	% OF SYSTEMS IN VIOLATION	% OF SYSTEMS IN COMPLIANCE
Monitoring - Major & Min (Routine & Repeat)	184	116	10%	90%
Non-Acute Coliform MCL	44	33	5%	95%
Acute Coliform MCL	12	12	1%	99%

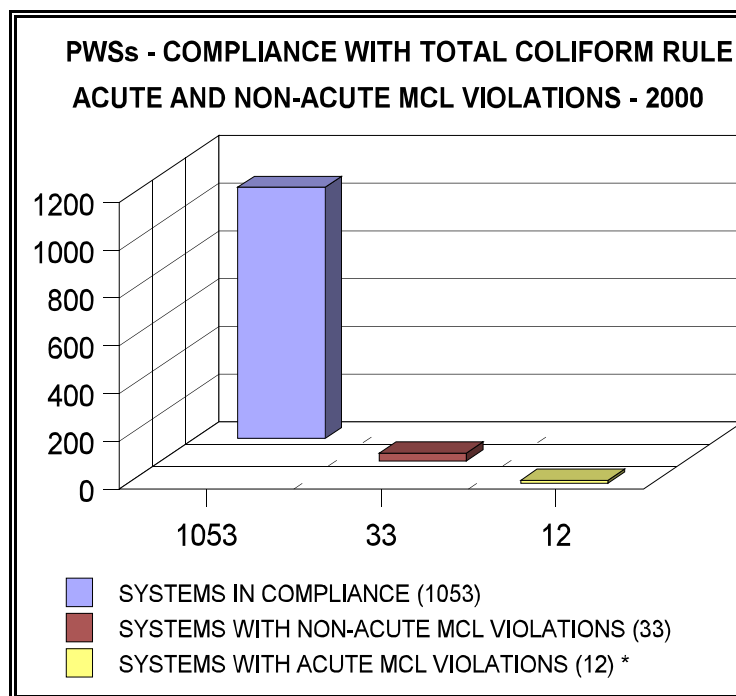
A total of 184 bacteriological monitoring violations occurred during 2000. These 184 monitoring violations were incurred by 116 water systems.

A total of 45 water systems had MCL violations because water samples tested positive for coliform and/or fecal coliform bacteria. Out of these 45 water systems, a total of 56 acute and non-acute MCL violations were incurred.

Water systems that have recurring monitoring and/or MCL violations are subject to having an Administrative Order, with or without penalty, issued by KDHE. Before an Administrative Order is issued, KDHE first issues a Directive in an attempt to get the public water supply to correct the violation. During 2000, Directives were issued to Brookville, Coolidge and Cowley CO RWD #7.

Figure 4 shows a comparison between the water systems that incurred acute and non-acute MCL violations and those in compliance during 2000. Note that the same twelve systems that had an acute MCL violation also had a non-acute total coliform violation.

**FIGURE 4.**



\*same 12 systems  
that had acute MCL  
violations also had non-acute total coliform violation.

## **V. PHASE II/V CHEMICAL RULES**

The Phase II/V Chemical Rule establishes **maximum contaminant levels (MCL)** and **treatment techniques** for various contaminants affecting drinking water, such as solvents, pesticides and herbicides, and heavy metals.

Kansas has adopted these federal drinking water regulations in the **Kansas Administrative Regulations (K.A.R.)**. All the contaminants regulated by this rule may be harmful to human health at certain concentrations and many are toxic and/or carcinogenic.

This rule contains five groups of contaminants:

- , **ASBESTOS**
- , **NITRATE/NITRITE**
- , **INORGANIC CHEMICALS (IOC)**
- , **VOLATILE ORGANIC COMPOUNDS (VOC)**
- , **SYNTHETIC ORGANIC COMPOUNDS (SOC)**

The Phase II/V Rule applies to all community water systems and non-transient non-community water systems. The nitrate/nitrite section of this regulation also applies to transient non-community water systems. Water systems that purchase all their water from other systems are not required to monitor for these contaminants.

Water systems are required to monitor for contaminants under a standardized monitoring schedule consisting of three compliance periods of three years each. During these compliance periods, water systems are required to perform specific monitoring depending on the population served and whether they use surface or groundwater. The first three-year compliance period began January 1, 1993 and ended December 31, 1995. The second compliance period began January 1, 1996 and ended on December 31, 1998. The third compliance period began January 1, 1999 and will end on December 31, 2001.

Water systems using surface water are required to monitor more frequently than those using groundwater because surface water is more susceptible to contamination. Water systems with populations greater than 3,300 are also required to monitor more frequently than small systems with populations of 3,300 or less. The monitoring data presented in this report is for calendar year 2000, which is the third year of the third monitoring period.

With the exception of asbestos, this regulation specifies that all the water samples must be collected at the **point of entry (POE)**. The POE is defined as a point after raw water has been treated (disinfected) and before it enters the distribution system.

Water systems are out of compliance with this rule by either failing to monitor or having an MCL violation. These violations require the system to issue public notice by notifying all their consumers of the violation using newspaper, television, radio, mail, and/or posted notices.

### **V(a). Asbestos**

Asbestos is a naturally occurring mineral found in the earth's crust in a fibrous form. Inhalation of asbestos fibers has been shown to produce lung tumors in humans. Ingestion of asbestos fibers greater than 10 micrometers in length has been shown to cause benign tumors in laboratory rats. To reduce the potential risk of cancer or other adverse health effects that have been observed in laboratory animals, EPA has set the drinking water standard for asbestos at 7 million fibers per liter (fibers longer than 10 micrometers).

Asbestos generally enters drinking water either from contact with natural mineral deposits or asbestos-cement pipes used in water distribution systems. Geologically, Kansas does not have any

---

naturally occurring asbestos. Therefore, KDHE waived source water asbestos monitoring for all water systems. However, water systems that utilize asbestos-cement pipes in their distribution system were required to test for asbestos. To identify systems having asbestos-cement pipes in 1993, KDHE conducted a survey of all water systems. The results of this survey yielded 208 water systems having asbestos-cement pipe. These systems were required to monitor for asbestos in their distribution systems, before the end of the first compliance period (December 31, 1995).

## **ASBESTOS MONITORING RESULTS**

All analyses for asbestos were performed by private certified laboratories during 1993 through 1995. Of the 208 water systems required to monitor for asbestos, 207 systems tested below 0.2 **million fibers per liter (MFL)** detection limit. Only one system had a concentration of asbestos greater than the MCL of 7 MFL. This system was required to perform public notice and monitor quarterly for asbestos during 1995. The results of this quarterly monitoring were consistently below the MCL. An investigation of the system determined the cause of the earlier asbestos MCL exceedance was due to a pigging operation (cleaning inside of pipes) involving asbestos cement pipes in the distribution system prior to the initial monitoring. Follow up monitoring indicated the system returned to compliance.

No monitoring of asbestos was required or done by any water system during 2000. Water systems that already monitored for asbestos during the 1993-1995 compliance period are not required to monitor again for asbestos until after the year 2002.

### **V(b). Nitrate/Nitrite**

Many drinking water contaminants, such as nitrate and nitrite are found naturally occurring in the environment. Nitrogen may find its way into the groundwater from decaying plant and animal matter, precipitation, and urban runoff. Fertilization of agricultural and urban land with ammonium nitrate, and runoff from livestock operations are also a significant source of nitrate contamination of groundwater.

Excessive amounts of nitrate and nitrite can cause methemoglobinemia in infants, also known as “blue-baby syndrome.” To safeguard infants from this condition, Kansas regulations (K.A.R. 28-15-13(b)) set the MCL at 10 **milligrams per liter (mg/l)** for nitrate and 1 mg/l for nitrite as the maximum allowable concentration in public drinking water supplies. Kansas regulations (K.A.R. 28-15-14(b)) require water systems with their own sources of water to monitor all their **points of entry (POE)** at least once a year for nitrate. Water systems that exclusively use purchased water from other systems are exempt from this monitoring.

## **NITRATE MONITORING RESULTS**

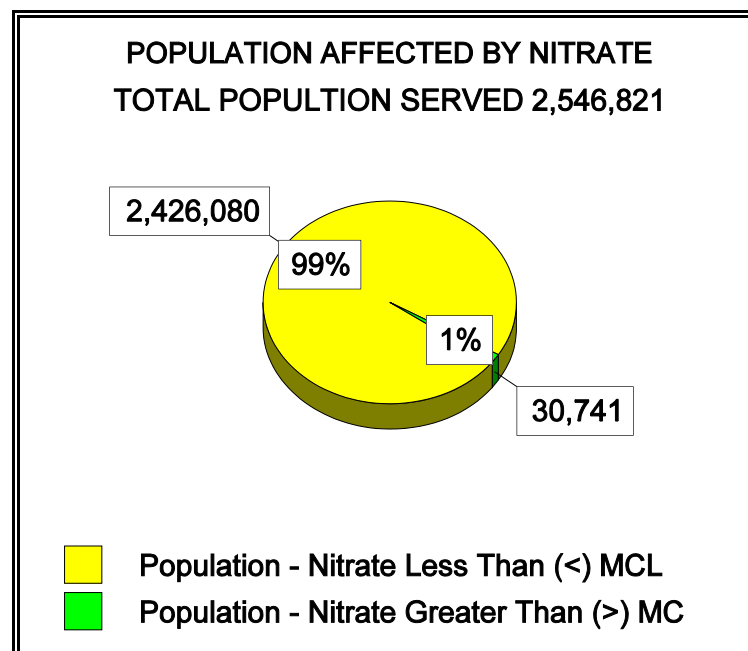
During 2000, 762 water systems were required to monitor from 1,181 POEs for nitrate. Forty-two water systems had analytical results greater than the nitrate MCL of 10 mg/l.

The average nitrate MCL violation for samples collected during 2000, resulted in a concentration of 13 mg/l. The minimum concentration was below the detection limit and the maximum concentration reported was 27 mg/l.

The water system with the largest population affected by nitrate MCL violations was the city of Goodland with a population of 4,669. The city of Goodland has 10 POEs, but only 2 POEs were affected by the exceedance.

The total population served by all water systems monitoring for nitrate was 2,456,821. The total population of water systems with no POE monitoring results exceeding the nitrate MCL was 2,426,080. The total population of water systems with a POE monitoring result exceeding the MCL was 30,741 which equals less than one percent of the total population. Figure 6 shows the population affected by nitrate MCL violations in comparison with the population of water systems in compliance.

**FIGURE 6.**





---

## COMPLIANCE AND ENFORCEMENT

Water systems with nitrate monitoring results above the MCL or failing to monitor were required to do public notice and provide proof to KDHE that public notice was performed. All water systems with nitrate violations performed the required public notice, except Harper Co. RWD #3, city of Long Island and city of Prairie View. Water systems with MCL violations were also required to monitor for nitrate at least quarterly.

Other water systems that are operating under Consent Orders are currently looking for new sources of water that meet all MCL requirements for drinking water.

The names of water systems that incurred nitrate monitoring and MCL violations during 2000 are listed in Appendix B.

### **V(c). Inorganic Chemicals**

Kansas regulations (K.A.R. 28-15-13(b)) set MCLs for nine metals and two non-metal contaminants. Table 5, on the following page lists these IOC contaminants and their MCLs in **milligrams per liter (mg/l)**. Most of these IOCs occur naturally in the environment and are soluble in water. Because of this, they are potential contaminants of drinking water. Not all IOCs originate from natural mineral deposits. Industrial activities such as metal finishing, textile manufacturing, mining operations, electroplating, manufacturing of fertilizers, paints, and glass can also generate these contaminants.

Inorganic contaminants can be toxic to humans at certain levels. Cadmium, chromium, and selenium can cause damage to the kidneys, liver and nervous and circulatory systems. Barium has been associated with high blood pressure and mercury has been shown to damage kidneys. Antimony, beryllium, cyanide, nickel and thallium have been shown to damage the brain, lungs, kidneys, heart, spleen and liver.

IOCs can be removed from drinking water using various available technologies such as coagulation/filtration, lime softening, reverse osmosis, ion exchange, oxidation, activated alumina, and granular activated carbon.

**TABLE 5.**  
**REGULATED INORGANIC CHEMICALS (IOC)**

Chemical Name	Maximum Contaminant Level (MCL)
<i>Antimony</i>	0.006 mg/l
<i>Arsenic</i>	0.05 mg/l
<i>Barium</i>	2 mg/l
<i>Beryllium</i>	0.004 mg/l
<i>Cadmium</i>	0.005 mg/l
<i>Chromium</i>	0.1 mg/l
<i>Cyanide 0.2</i>	mg/l
<i>Fluoride</i>	4 mg/l
<i>Mercury</i>	0.002 mg/l
<i>Selenium</i>	0.05 mg/l
<i>Thallium</i>	0.002 mg/l

## **IOC MONITORING FREQUENCY**

All community and non-transient non-community water systems are required to monitor each **point of entry (POE)** for IOCs. Water systems using groundwater as their sole source must monitor at least once during every three year compliance period (1999 through 2001). Systems using surface water as a source must monitor for IOCs at least once a year. Systems exclusively purchasing treated water as their source are exempt from this monitoring.

Water systems incurring a MCL violation are required to increase their monitoring to at least quarterly. Water systems having a MCL or monitoring violation are required to notify their customers of such violations by issuing a public notice.

## **IOC MONITORING RESULTS**

During 2000, 675 water systems monitored for IOCs. Nine water systems failed to sample during 2000 and received a monitoring violation. Selenium was the only inorganic chemical detected above the MCL. Three water systems incurred 9 selenium MCL violations. These three systems had high levels of selenium detected in 1998 and 1999, and were monitoring quarterly for selenium during 2000. The three water systems in violation of the selenium MCL represent less than one percent of the total systems in Kansas, resulting in a compliance rate greater than 99 percent.

The total population affected by these selenium MCL violations was 783. The average population of water systems with a selenium MCL violation was 261.

All other IOC results were at or below MCLs. The names of systems that incurred an IOC monitoring violation or selenium MCL violation are listed in Appendix B.

### **V(d) Volatile Organic Compounds**

**Volatile organic compounds (VOC)** are commonly referred to as organic solvents. These compounds are constituents of many degreasers, industrial cleaners, spot/stain removers, paint thinners, in some paints, varnishes and lacquers, in many paint removers/strippers, in many pesticides/herbicides, in most dry cleaning chemicals, in many printing inks and printing press chemicals, in most petroleum products including many types of fuels. Most of these compounds are flammable and toxic to varying degrees. Because of these characteristics, they are also a potential source of environmental pollution and pose a health hazard when present in drinking water.

Kansas has established regulations governing VOCs in drinking water. These regulations, K.A.R. 28-15-14, specify when a water systems must monitor their POE for VOC contaminants. Large water systems, serving populations of more than 3,300 people, are required to sample each POE at least annually. Small water systems serving populations of 3,300 or less are required to sample each POE at least once during the three year compliance period (1999 through 2001). If any contaminants are detected during this regular monitoring additional monitoring is required.

**TABLE 6.  
REGULATED VOLATILE ORGANIC COMPOUNDS (VOC)**

Compound Name	MCL	Uses
<i>Benzene 0.005</i>	<i>mg/l</i>	<i>fuels, pesticides, paints, pharmaceutical</i>
<i>Carbon tetrachloride</i>	<i>0.005</i>	<i>degreasing agents, fumigants</i>
<i>Chlorobenzene</i>	<i>0.1</i>	<i>industrial solvents, pesticides</i>
<i>cis-1,2 Dichloroethylene</i>	<i>0.07</i>	<i>industrial solvents, chemical manufacturing</i>
<i>Dichloromethane</i>	<i>0.005</i>	<i>paint strippers, refrigerants, fumigants</i>
<i>Ethylbenzene</i>	<i>0.7</i>	<i>gasoline, insecticides</i>
<i>o-Dichlorobenzene</i>	<i>0.6</i>	<i>insecticides, industrial solvents</i>
<i>p-Dichlorobenzene</i>	<i>0.075</i>	<i>insecticides, moth balls</i>
<i>Styrene</i>	<i>0.1</i>	<i>plastics, synthetic rubber, resins</i>
<i>Tetrachloroethylene</i>	<i>0.005</i>	<i>dry cleaning/industrial solvents</i>
<i>trans-1,2 Dichloroethylene</i>	<i>0.1</i>	<i>industrial solvents, chemical manufacturing</i>
<i>Trichloroethylene</i>	<i>0.005</i>	<i>paint strippers, dry cleaning, degreasers</i>
<i>Vinyl chloride</i>	<i>0.002</i>	<i>plastics/synthetic rubber, solvents</i>
<i>Xylenes</i>	<i>10</i>	<i>paints/inks, solvents, synthetic fibers, dyes</i>
<i>1,1 Dichloroethylene</i>	<i>0.007</i>	<i>paints, dyes, plastics</i>
<i>1,1,1 Trichloroethane</i>	<i>0.2</i>	<i>metal cleaning/degreasing agent</i>
<i>1,1,2 Trichloroethane</i>	<i>0.005</i>	<i>industrial degreasing solvents</i>
<i>1,2 Dichloroethane</i>	<i>0.005</i>	<i>gasoline, insecticides</i>
<i>1,2 Dichloropropane</i>	<i>0.005</i>	<i>soil fumigants, industrial solvents</i>
<i>1,2,4 Trichlorobenzene</i>	<i>0.07</i>	<i>industrial solvents</i>

### **VOC MONITORING RESULTS**

During 2000, 607 POE water samples from 365 water systems were monitored for all regulated and unregulated VOCs.

VOC monitoring during 2000, concluded with no water systems having any water samples test greater than the MCL for any VOC. No water system incurred a VOC monitoring violation during 2000.

### **V(e) Synthetic Organic Compounds**

**Synthetic organic compounds (SOC)** are man-made compounds, many of which are chlorinated and used as herbicides, pesticides, fungicides and insecticides. Kansas regulation, K.A.R. 28-15-14, requires water systems to monitor their drinking water for 33 SOC's. MCLs for each of these SOC contaminants is set by Kansas regulation, K.A.R. 28-15-13.

Water systems failing to monitor or incurring an MCL violation for any of the compounds listed in Table 7 must notify the public of such violation and provide proof of performing such public notice to KDHE.

Table 7 shows a list of the regulated synthetic organic compounds tested by KDHE.

**TABLE 7.**

#### **REGULATED SYNTHETIC ORGANIC COMPOUNDS (SOC)**

Compound Name	MCL	Uses
<i>Alachlor (Lasso)</i>	0.002 mg/l	herbicide
<i>Aldicarb</i>	0.003 mg/l	insecticide
<i>Aldicarb sulfoxide</i>	0.003 mg/l	insecticide
<i>Aldicarb sulfone</i>	0.003 mg/l	insecticide
<i>Atrazine (Atranex, Crisazina)</i>	0.003 mg/l	herbicide
<i>Benzo(a)pyrene</i>	0.0002 mg/l	coal tar lining & sealants
<i>Carbofuran (Furadan 4F)</i>	0.04 mg/l	rootworm, weevil control
<i>Chlordane</i>	0.002 mg/l	termite control
<i>Dalapon</i>	0.2 mg/l	herbicide
<i>Dibromochloropropane(DBCP, Nemaflume)</i>	0.0002 mg/l	pesticide, nematocide, soil fumigant
<i>2,4-D (2,4-dichlorophenoxyacetic acid)</i>	0.07 mg/l	herbicide, defoliant
<i>2,4,5-TP (Silvex)</i>	0.05 mg/l	herbicide, defoliant
<i>Di(diethylhexyl)adipate</i>	0.4 mg/l	plasticizer
<i>Di(diethylhexyl)phthalate</i>	0.006 mg/l	plasticizer
<i>Dinoseb (2,4-dinitro-6-sec-butylphenol)</i>	0.007 mg/l	insecticide, herbicide
<i>Diquat</i>	0.02 mg/l	herbicide
<i>Endothall</i>	0.1 mg/l	herbicide, defoliant
<i>Endrin</i>	0.002 mg/l	insecticide
<i>Ethylene Dibromide (EDB, Bromofume)</i>	0.0005 mg/l	gasoline additive, fumigants, & solvents
<i>Glyphosate</i>	0.7 mg/l	herbicide
<i>Heptachlor (H-34, Heptox)</i>	0.0004 mg/l	termite control
<i>Heptachlor epoxide</i>	0.0002 mg/l	insecticide
<i>Hexachlorobenzene</i>	0.001 mg/l	by-product of solvents & pesticides
<i>Hexachlorocyclopentadiene</i>	0.05 mg/l	pesticide, fungicide
<i>Lindane</i>	0.0002 mg/l	pesticide

---

---

<i>Methoxychlor (DMDT, Marlate)</i>	0.04	mg/l	<i>insecticide</i>
<i>Oxamyl (Vydate)</i>	0.2	mg/l	<i>insecticide</i>
<i>Pentachlorophenol (PCP)</i>	0.001	mg/l	<i>herbicide, fungicide, wood preservative</i>
<i>Picloram (Tordon)</i>	0.5	mg/l	<i>herbicide, defoliant</i>
<i>Polychlorinated Biphenyls (PCB, Aroclors)</i>	0.0005	mg/l	<i>herbicide</i>
<i>Simazine</i>	0.004	mg/l	<i>herbicide</i>
<i>2,3,7,8 TCDD (Dioxin)</i>	3E-8	mg/l	<i>pesticide byproduct</i>
<i>Toxaphene</i>	0.003	mg/l	<i>pesticide</i>

---

---

## **MONITORING FREQUENCY**

During the first compliance period of 1993 through 1995, all required water systems performed monitoring for all SOC's listed in Table 7 above, with the exception of the chemicals previously waived. **Atrazine** and **ethylene dibromide (EDB)** were the only contaminants in the SOC group that were detected over their MCL during this first compliance period.

Based on these monitoring results, KDHE with EPA approval, allowed water systems to only monitor for atrazine and EDB during the subsequent compliance period of 1996 through 1998. Other than atrazine, a widely use herbicide, no other contaminants were detected by themselves. Alachlor, the only other pesticide detected, always appeared in conjunction with atrazine.

Water systems utilizing groundwater are required to monitor each POE at least once during the three year compliance period (1999-2001). Small systems (population# 3,300) utilizing surface water were required to monitor their POE a minimum of one quarter during the three year compliance period; collecting the water sample during the months of May or June. Large surface water systems (population > 3,300) were required to monitor their POE at least annually during the months of May or June.

Water systems using groundwater, that had no SOC's detected during the first compliance period (1993-95), tested for atrazine during 1996 through 1998, using an immunoassay method (EPA Method 4670). This immunoassay method was used because it is highly sensitive in detecting any contaminant in the triazine chemical family and is one fourth the cost of the regular drinking water method (EPA Method 507).

Groundwater systems with previous SOC detects and all surface water systems were required to perform the regular atrazine testing using EPA Method 507. This Method also detects alachlor, the only other pesticide detected during the previous compliance period.

## **SOC MONITORING WAIVER**

The monitoring requirements for Diquat, Endothall, and 2,3,7,8-TCDD (Dioxin) were waived by KDHE since they are not widely used in the state and have never been previously detected.

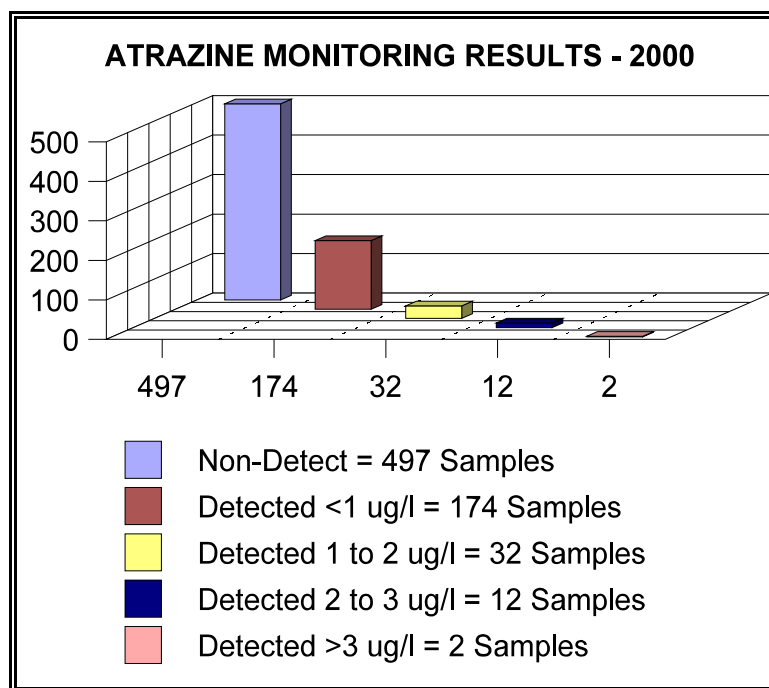
Glyphosate monitoring was waived because it is changed to a non-toxic chemical by chlorination. This monitoring waiver collectively saved public water supply systems close to one million dollars in laboratory analysis costs during the first compliance period.

## **SOC MONITORING RESULTS**

A total of 396 water systems collected water samples from 719 POEs for atrazine testing during 2000. None of these water systems exceeded the MCL of 3.0 **micrograms per liter (µg/l)**.

Of the 719 POE water samples collected during 2000, 222 samples or 31% percent showed atrazine detected. Of these 222 water samples, 174 detected atrazine at concentrations below 1.0 ug/l, 32 at concentrations between 1.0 and 2.0 ug/l, 12 at concentrations between 2.0 and 3.0 ug/l, and 2 were greater than the MCL of 3.0 ug/l. See Figure 7.

**FIGURE 7.**



## **UNREGULATED AND OTHER CONTAMINANTS**

### **V(f) MTBE**

Recent news reports about the gasoline additive MTBE (methyl tertiary-butyl ether) may be causing undue alarm for Kansas residents. KDHE laboratories first detected MTBE in Kansas water samples as early as 1985. Since 1996, the KDHE labs have routinely monitored MTBE in public water supplies when analyzing for VOC's. KDHE staff began studying how to remove MTBE from water, and treatment systems were successfully designed and put into place in 1997. These treatment systems were developed by consulting engineers along with KDHE staff. The systems have led to a 94-100 percent reduction of MTBE contamination in public water supply systems that have detected higher level of the contaminant.

In 2000, 442 samples from 194 systems were monitored for MTBE. MTBE was detected in 48 samples. Results ranged from less than the detection limit of 0.5 ug/l to 158 ug/l.

Currently there is no regulatory standard established for MTBE in terms of an unsafe level in drinking water or human exposure, in 1997 EPA issued a health advisory level for MTBE of 20 - 40 ppb (parts per billion) based solely on taste and odor. KDHE considers any detection of MTBE in a water supply reason for investigation and possible corrective action to protect individuals from exposure and possible health risk. Actions range from requiring the contaminated well to be shut down, blending it with water from other sources, or in severe cases, installing treatment to remove the MTBE from the water. Currently, no water supplies are distributing water containing MTBE over 20 ppb.

Kansas regulations K.A.R. 28-15-13, set MCLs for each VOC contaminant listed in Table 6. Water systems are also required to test for unregulated VOC contaminants. Unregulated contaminants are those for which no MCL has been established. Test for these unregulated VOC contaminants are done in order to determine occurrence and evaluate health risk. Using data from these unregulated contaminants, appropriate MCLs can be established in the future.

## **VI. LEAD AND COPPER**

High exposure to metals has long been recognized as a cause of adverse health effects in humans. Lead has been singled out because of its possible appearance in drinking water and its high toxicity to humans. Copper, although an essential nutrient, also poses a health threat at elevated levels. Young children are especially susceptible to the toxic effects of these metals.

Lead and copper found in water pipes and in old plumbing solder can leach into the drinking water. Besides leaching from water pipes and solder, lead and copper can also leach from brass water faucet fixtures. As a step to reduce lead in drinking water, regulations prohibit the use of lead water pipes and lead plumbing solder.

KDHE regulations govern lead and copper in drinking water and can be found at K.A.R. 28-15-22. These regulations apply to all community water systems and non-transient non-community water systems. These water systems are required to monitor for lead and copper on a scheduled basis. If monitoring results indicate unacceptable levels of lead or copper, the water system is required to initiate corrosion control treatment techniques to minimize lead and/or copper contamination. Action levels set by this regulation are 0.015 milligrams per liter (mg/l) (15 micrograms per liter (µg/l)) for lead and 1.3 mg/l (1,300 µg/l) for copper.

## **LEAD AND COPPER MONITORING RESULTS**



---

Five hundred and fifteen water systems were scheduled to monitor for lead and copper during 2000. Twenty-two systems incurred monitoring violations by failing to perform their required routine and follow-up tap sampling. These water systems were required to do public notice for such violations.

Six systems exceeded the lead or copper action levels. These systems were required to proceed with corrosion control treatment techniques and if lead was exceeded, implement public education programs. Three systems failed to install corrosion control treatment and three failed to submit a treatment recommendation. Four systems failed to do the required public education after exceeding the lead action level. Notices of violation were sent to these four systems requiring them to perform public notice for such violations.

These lead and copper violations translate to a 96% compliance rate for monitoring and a 67% compliance rate for treatment installation and public education. The names of the systems which incurred violations of this regulation during 2000 are listed in Appendix B.

## **VII. DISINFECTION BY-PRODUCTS**

To ensure drinking water is safe and pathogen free it must be disinfected. The most commonly used method of disinfection is chlorination. Unfortunately, the chlorine added to water to kill harmful microorganisms also combines with organic matter naturally present in water to form chemical compounds called **trihalomethanes** or **THMs**. These THMs are suspected of being carcinogens.

Because of this concern, Kansas (K.A.R. 28-15-13), established a maximum contaminant level of 0.1 **milligrams per liter (mg/l)** for total THMs (**TTHM**) in drinking water. Compliance with this MCL of 0.1 mg/l is determined by adding the concentrations of all THMs detected in a water sample collected from the distribution system.

This regulation requires all water systems serving 10,000 or more people to monitor for THMs on a quarterly basis. Water systems with TTHM results over the MCL of 0.1 mg/l must notify their customers by issuing public notice for the MCL violation. The following table shows the four THMs that must be monitored for in drinking water.

**TABLE 8.**

**TRIHALOMETHANES (THMs)**

TRICHLOROMETHANE (CHLOROFORM)	(CHCl <sub>3</sub> )
TRIBROMOMETHANE (BROMOFORM)	(CHBr <sub>3</sub> )
BROMODICHLOROMETHANE	(CHBrCl <sub>2</sub> )
DIBROMOCHLOROMETHANE	(CHBr <sub>2</sub> Cl)

**MONITORING RESULTS FOR THMs**

Thirty-nine systems were required to monitor for THMs during 2000. Most large water systems in Kansas are surface water systems. Surface water generally has more suspended and dissolved organic material than groundwater. Of the 39 water systems monitoring THMs, 24 were surface water and 15 were groundwater systems. One water system, PWWSD #4-Cherryvale, incurred an MCL violation during 2000, however, no monitoring violations were incurred. A 99 percent compliance rate was achieved for this regulation during 2000.

**VIII. SURFACE WATER TREATMENT**

Almost one third of all water systems in Kansas use surface water for part or all of their drinking water. There are 356 water systems using surface water. These water systems provide drinking water to about two thirds of the Kansas population. Water for these systems originates from rivers or man-made reservoirs located throughout the state.

Unlike most groundwater that is protected by the earth's crust, surface water is exposed to the atmosphere and surface runoff. This exposure makes surface water more vulnerable to contamination than most groundwater. For this reason, a regulation has been developed specifically for surface water and groundwater under the influence of surface water, such as springs and shallow wells which are susceptible to surface contamination.

Kansas regulation (K.A.R. 28-15-21), address as specific treatment requirements for surface water. This regulation requires that surface water systems, “provide filtration and disinfection treatment of source water. This regulation is known as the **surface water treatment rule** or **SWTR**.

This regulation requires water systems to filter the water, and keep a record of turbidity readings of the treated water entering the distribution system. High turbidity levels adversely affect the efficiency of the disinfection process, contribute to the undesirable formation of **trihalomethanes (THMs)**, and indicate viruses or Giardia Lamblia may be present. For these reasons turbidity limits are set depending on the type of filtration used.

The maximum allowable for any single finished water turbidity reading is 5.0 **nephelometric turbidity units (NTU)**. Additionally, for a system to be in compliance, at least 95 percent of the filtered water samples during a month must have turbidity levels less than or equal to 0.5 NTU.

These regulations also require that the filtering process in conjunction with the disinfection treatment remove or inactivate 99.99 percent of viruses and 99.9 percent of Giardia Lamblia cysts. The presence of viruses in drinking water can cause stomach cramps and/or gastroenteritis (intestinal distress). The chlorine (disinfectant) concentration in the water entering the distribution system is required to be at least 0.2 mg/l of free chlorine or 1.0 mg/l of combined chlorine. Chlorine residual readings must be taken daily at set intervals and recorded by the water operator. Turbidity and disinfection records are required to be submitted to KDHE on a monthly basis for compliance determination.

## **SURFACE WATER MONITORING RESULTS**

There are a total of 109 systems currently monitoring for compliance (including systems using groundwater under the influence of surface water, surface water and a combination of ground and surface waters) under the SWTR regulations. During 2000, 12 water systems incurred 17 violations of the surface water treatment technique regulation. 7 water systems incurred 8 monitoring, or routine/repeat violations.

These water systems had a monitoring compliance rate of 93 percent and a treatment technique compliance rate of 96 percent. 10 systems performed public notification as required of such violations to their customers. The names of the systems which incurred violations of this regulation during 2000 are listed in Appendix B.

## **IX. RADIONUCLIDES**

Most radiation occurs naturally and is readily present in the environment. Radiation in groundwater commonly occurs when water comes in contact with the natural decay of uranium in rocks and soils. In most circumstances, this radiation occurs at such low levels it is harmless to human health.

Occasionally, in some areas of the state, these radiation levels occur at higher levels which may present a risk to human health. For this reason, regulations which have been adopted requiring water systems to monitor their drinking water for radionuclides.

Table 9, on the following page, lists the radiological contaminants along with their common sources, and the corresponding MCLs as set by Kansas regulations (K.A.R. 28-15-13 (d) (1)).

Only community water systems are required to monitor their drinking water for radionuclides. At a minimum, these water systems must monitor for radionuclides once every four years. Water systems with monitoring results greater than the MCL are required to monitor quarterly. These water systems are also required to issue a public notice informing their customers of the MCL violation.

**TABLE 9.**  
**RADIONUCLIDES**

CONTAMINANT	SOURCES / USES	MCL
Gross alpha	natural decay of uranium in rocks and soil	15 pCi/l
Gross beta	natural decay of uranium in rocks and soil, nuclear weapon production, pharmaceuticals	50 pCi/l or 4 mrem/yr
Radium 226 & 228	natural decay of uranium in rocks and soil	5 pCi/l
Strontium-90	artificial isotope, used in research and medicine, in industrial density measuring devices, in atomic batteries, in luminous paint	8 pCi/l
Tritium	man-made isotope, used as chemical tracer in research, in nuclear weapons production, in luminous instrument dials	20,000 pCi/l

Key: pCi/l = picoCurie per liter  
mrem/yr = millirem per year

## **MONITORING RESULTS FOR RADIONUCLIDES**

Three water systems incurred three MCL violations for combined radium 226 & 228 during 2000. The population affected by these MCL violations were 691. These water systems were notified by KDHE of the MCL violations and required to issue public notice. No water systems had radionuclide monitoring violations during 2000. The names of the systems which incurred radiological MCL violations are listed in Appendix B.

## **X. CONSUMER CONFIDENCE REPORT (CCR)**

The Consumer Confidence Report (CCR) rule is a new requirement from the 1996 Safe Drinking Water Act, gives consumers more information on their drinking water quality and opportunities to get involved in protecting their source of water.

---

Under the CCR rule, all community water systems (CWSs) are required to provide customers with an annual water quality report or CCR. EPA specified certain health risk language for the reports, and required water systems to distribute these reports annually to all of their customers. CCRs summarize information to help educate and inform customers about their water system.

The guiding principle behind Consumer Confidence Reports is that all people have the right to know what is in their drinking water and where it comes from.

The CCR required the first report to contain data used to determine compliance in calendar year 1998, and to be delivered by October 1, 1999. All subsequent annual reports are due by July 1 and will include information from the previous calendar year.

By July 1, 2000, 918 community water systems were to deliver the CCR for calendar year 1999 to their customers, and send a copy of the actual report and a certificate of mailing to KDHE. The number of facilities in violation for not delivering a copy of their CCR to their customers by July 1, 2000 was 301. Notices of the violation were sent to the facilities on August 24, 2000, followed by phone calls to non-responding water systems. EPA was notified of the violations and sent out Notice of Violations (NOV's) to 21 facilities. One water system, Wallace CO RWD #1-Weskan, has not responded to the NOV.

## **XI. SUMMARY**

**Appendix A** lists the number of MCL, treatment technique, and monitoring/reporting violations by regulated parameter. There were no violations for the majority of parameters. The following is a summary of parameters which incurred violations.

**Bacteriological** monitoring resulted in 45 water systems having coliform MCL violations, 12 of which also incurred acute MCL violations. These monitoring results translate to 95 percent of all systems being in compliance. The population affected by these MCL violations was 154,306 or less than 6 percent of the population served by all water systems. The number of systems with total coliform major monitoring violations was 41, with 76 violations. The population affected by these monitoring violations was 5,393 or 0.3 percent of the population served by all systems. Overall, 156 water systems had at least one bacteriological MCL or monitoring violation during 2000. This means that 950 systems or 97 percent of water systems were in compliance with the total coliform rule.

In the organic contaminant group (**VOCs** and **SOCs**), no water systems incurred a monitoring or MCL violation during 2000.

In the inorganic contaminants (**IOCs**) group, **nitrate** and **selenium** were the only contaminants detected above the MCL during 2000. **Nitrate** MCL violations occurred in 39 out of 768 systems monitoring. This translates to a compliance rate of 97 percent of water systems in compliance. The

---

population affected by these nitrate MCL violations was 30,741, or less than 1 percent of the total population served in Kansas.

**Selenium** was detected above the MCL in three of the 138 water systems required to monitor during 2000. This translates to 99 percent of water systems in compliance. The population affected by these three selenium MCL violations was 783 or less than 1 percent of the total population served in Kansas.

**Lead and copper** monitoring resulted in 22 water systems with monitoring violations. The number of systems monitoring for lead and copper was 515. During 2000, 99 percent of water systems were in compliance with monitoring requirements with less than 2 percent of systems incurring monitoring violations. Six systems exceeded lead or copper action levels. Three systems failed to install corrosion control treatment and three failed to submit a treatment recommendation. Four systems failed to do required public education after exceeding the lead action level.

**Disinfection by-product** monitoring for **THMs** resulted with no water system incurring monitoring violation and one water system incurred an MCL violations. These results translate to a THM compliance rate of 99 percent during 2000.

The **surface water treatment rule (SWTR)** had 12 water systems out of 109 water systems using surface water incurred violations. Of the 12 systems with violations, 17 had treatment technique violations, leaving 96 percent of water systems in compliance. 8 of the 16 systems had monitoring/reporting violations, leaving 93 percent of water systems in compliance. Collectively, these results placed 88 percent of all systems regulated by the SWTR in compliance during 2000.

**Radionuclide** monitoring resulted in three water systems detecting radium 226/228 above the MCL. This amounts to a compliance rate of 99 percent with less than one percent of systems being in violation. The population affected by these radium MCL violations was 691.

The overall compliance rate for Kansas public water supplies with drinking water regulations during 2000 was 85 percent. A total of 165 water systems incurred at least one violation of a drinking water regulation. This left 957 water systems operating out of the 1,098 water systems having no violations during 2000.

Ninety-one percent of the Kansas population was served by water systems in compliance with federal and state drinking water regulations during 2000. Of the 2,467,471 people served by all water systems, 2,225,484 people were not affected by any violations. Only 9 percent, or 223,589 people, were affected by water systems that had a monitoring or MCL violations.

The following table, shows the percentage of all water systems that had no monitoring and/or MCL violations occurring during 2000 for each specific drinking water regulation.

**TABLE 10.**

**WATER SYSTEMS COMPREHENSIVE COMPLIANCE SUMMARY  
FOR ALL VIOLATIONS**

REGULATION	% IN COMPLIANCE
Total Coliform Rule	97 %
Nitrate / Nitrite	97 %
Inorganic Chemicals (IOCs)	99 %
Volatile Organic Compounds (VOCs)	100 %
Synthetic Organic Compounds (SOCs)	100 %
Total Trihalomethanes (TTHMs)	99 %
Lead and Copper Rule	96 %
Surface Water Treatment Rule	93%
Radionuclides Rule	99 %

Table 11, below, shows a comparison of the overall compliance percentages for all water systems over the last three years.



**TABLE 11.**

**WATER SYSTEMS COMPLIANCE COMPARISON  
FOR 1998, 1999, AND 2000**

REGULATION	1998	1999	2000
Total Coliform Rule	92 %	91 %	97 %
Nitrate	97 %	97 %	97 %
Inorganic Chemicals (IOCs)	97 %	99 %	99 %
Volatile Organic Compounds (VOCs)	99 %	100 %	100 %
Synthetic Organic Compounds (SOCs)	99 %	100 %	100 %
Total Trihalomethanes (TTHMs)	100 %	100 %	99 %
Lead and Copper Rule	97%	99%	99 %
Surface Water Treatment Rule	80 %	88 %	93 %
Radionuclides Rule	99 %	99 %	99%

**Appendix A**  
**Violations Table**  
(with SDWIS Codes)

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	<b>Organic Contaminants (VOC / SOC)</b>							
2981	1,1,1-Trichloroethane	0.2	0	0			0	0
2977	1,1-Dichloroethylene	0.007	0	0			0	0
2985	1,1,2-Trichloroethane	0.005	0	0			0	0
2378	1,2,4-Trichlorobenzene	0.07	0	0			0	0
2931	1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0	0			0	0
2980	1,2-Dichloroethane	0.005	0	0			0	0
2983	1,2-Dichloropropane	0.005	0	0			0	0
2063	2,3,7,8-TCDD (Dioxin)	3x10 <sup>-8</sup>	0	0			0	0
2110	2,4,5-TP	0.05	0	0			0	0
2105	2,4-D	0.07	0	0			0	0
2265	Acrylamide				0	0		

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
2051	Alachlor	0.002	0	0			0	0
2050	Atrazine	0.003	0	0			0	0
2990	Benzene	0.005	0	0			0	0
2306	Benzo[a]pyrene	0.0002	0	0			0	0
2046	Carbofuran	0.04	0	0			0	0
2982	Carbon tetrachloride	0.005	0	0			0	0
2959	Chlordane	0.002	0	0			0	0
2380	cis-1,2-Dichloroethylene	0.07	0	0			0	0
2031	Dalapon	0.2	0	0			0	0
2035	Di(2-ethylhexyl)adipate	0.4	0	0			0	0
2039	Di(2-ethylhexyl)phthalate	0.006	0	0			0	0
2964	Dichloromethane	0.005	0	0			0	0
2041	Dinoseb	0.007	0	0			0	0
2032	Diquat	0.02	0	0			0	0
2033	Endothall	0.1	0	0			0	0
2005	Endrin	0.002	0	0			0	0

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
2257	Epichlorohydrin				0	0		
2992	Ethylbenzene	0.7	0	0			0	0
2946	Ethylene dibromide	0.00005	0	0			0	0
2034	Glyphosate	0.7	0	0			0	0
2065	Heptachlor	0.0004	0	0			0	0
2067	Heptachlor epoxide	0.0002	0	0			0	0
2274	Hexachlorobenzene	0.001	0	0			0	0
2042	Hexachlorocyclopentadiene	0.05	0	0			0	0
2010	Lindane	0.0002	0	0			0	0
2015	Methoxychlor	0.04	0	0			0	0
2989	Monochlorobenzene	0.1	0	0			0	0
2968	o-Dichlorobenzene	0.6	0	0			0	0
2969	para-Dichlorobenzene	0.075	0	0			0	0
2383	Total polychlorinated biphenyls	0.0005	0	0			0	0
2326	Pentachlorophenol	0.001	0	0			0	0

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
2987	Tetrachloroethylene	0.005	0	0			0	0
2984	Trichloroethylene	0.005	0	0			0	0
2996	Styrene	0.1	0	0			0	0
2991	Toluene	1	0	0			0	0
2979	trans-1,2-Dichloroethylene	0.1	0	0			0	0
2955	Xylenes (total)	10	0	0			0	0
2020	Toxaphene	0.003	0	0			0	0
2036	Oxamyl (Vydate)	0.2	0	0			0	0
2040	Picloram	0.5	0	0			0	0
2037	Simazine	0.004	0	0			0	0
2976	Vinyl chloride	0.002	0	0			0	0
2950	Total trihalomethanes	0.10	0	0			0	0

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	<b>Inorganic Contaminants (IOC)</b>							
1074	Antimony	0.006	0	0			0	0
1005	Arsenic	0.05	0	0			0	0
1094	Asbestos	7 million fibers/F# 10 : m long	0	0			0	0
1010	Barium	2	0	0			0	0
1075	Beryllium	0.004	0	0			0	0
1015	Cadmium	0.005	0	0			0	0
1020	Chromium	0.1	0	0			0	0
1024	Cyanide (as free cyanide)	0.2	0	0			0	0
1025	Fluoride	4.0	0	0			0	0
1035	Mercury	0.002	0	0			0	0
1040	Nitrate	10 (as Nitrogen)	93	39			0	0
1041	Nitrite	1 (as Nitrogen)	0	0			0	0

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
1045	Selenium	0.05	9	3			0	0
1085	Thallium	0.002	0	0			0	0
1038	Total nitrate and nitrite	10 (as Nitrogen)	0	0			0	0

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	<b>Radionuclide MCLs</b>							
<b>4000</b>	<b>Gross alpha</b>	<b>15 pCi/l</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>4010</b>	<b>Radium-226 and radium-228</b>	<b>5 pCi/l</b>	<b>3</b>	<b>3</b>			<b>0</b>	<b>0</b>
<b>4101</b>	<b>Gross beta</b>	<b>4 mrem/yr</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
	<b>Subtotal Water Chemistry</b>		<b>105</b>	<b>45</b>			<b>0</b>	<b>0</b>



<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	<b>Total Coliform Rule</b>							
21	Acute MCL violation	Presence	12	12				
22	Non-acute MCL violation	Presence	44	33				
23,25	Major routine and follow up monitoring						75	43
28	Sanitary survey						0	0
	<b>Subtotal</b>		56	33 <sup>1</sup>			75	43

---

<sup>1</sup>Includes the 12 acute violations and violators. These 12 systems incurred an acute (fecal) coliform violation (Code 21), and also had a total coliform violation (Code 22) the same month. Hence, subtotal number of violations is higher than the number of PWSs due to the fact some PWSs incurred more than one violation.

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	Surface Water Treatment Rule (SWTR)							
	Filtered systems							
36	Monitoring, routine/repeat						8	7
41	Treatment techniques				17	12		
	Unfiltered systems							
31	Monitoring, routine/repeat						0	0
42	Failure to filter				0	0		
	<b>Subtotal</b>				17	12	8	7

<b>State:</b>	<b>KANSAS</b>
<b>Reporting Interval:</b>	<b>2000 Calendar Year</b>

SDWIS Codes		MCL (mg/l) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	<b>Lead and Copper Rule</b>							
51	Initial lead and copper tap M/R						0	0
52	Follow-up or routine lead and copper tap M/R						22	22
58	Treatment Installation				3	3		
65	Public education				4	4		
	<b>Subtotal</b>				7	7	22	22

1. Values are in milligrams per liter (mg/l), unless otherwise specified.

**Definitions for the Violations Table above**

The following definitions apply to the Summary of Violations table.

***Filtered Systems:*** Water systems that have installed filtration treatment [40 CFR 141, Subpart H].

***Inorganic Contaminants:*** Non-carbon-based compounds such as metals, nitrates, and asbestos. These contaminants are naturally-occurring in some water, but can get into water through farming, chemical manufacturing, and other human activities. Regulations have established MCLs for 15 inorganic contaminants [40 CFR 141.62].

***Lead and Copper Rule:*** This rule established national limits on lead and copper in drinking water [40 CFR 141.80-91]. Lead and copper corrosion pose various health risks when ingested at any level, and can enter drinking water from household pipes and plumbing fixtures. States report violations of the Lead and Copper Rule in the following six categories:

***Initial lead and copper tap M/R:*** A violation where a system did not meet initial lead and copper testing requirements, or failed to report the results of those tests to the State.

***Follow-up or routine lead and copper tap M/R:*** A violation where a system did not meet follow-up or routine lead and copper tap testing requirements, or failed to report the results.

***Treatment installation:*** Violations for a failure to install optimal corrosion control treatment system or source water treatment system which would reduce lead and copper levels in water at the tap. [One number is to be reported for the sum of violations in both categories].

***Lead service line replacement:*** A violation for a system's failure to replace lead service lines on the schedule required by the regulation.

***Public education:*** A violation where a system did not provide required public education about reducing or avoiding lead intake from water.

***Maximum Contaminant Level (MCL):*** The highest amount of a contaminant that is allowed in drinking water. MCLs ensure that drinking water does not pose either a short or long-term health risk. MCLs are defined in milligrams per liter (parts per million) unless otherwise specified.

***Monitoring:*** Regulations specify which water testing methods the water systems must use, and sets schedules for the frequency of testing. A water system that does not follow this schedule or methodology is in violation [40 CFR 141].

States must report monitoring violations that are significant as determined by the EPA Administrator and in consultation with the States. For purposes of this report, significant monitoring violations are major violations and they occur when no samples are taken or no results are reported during a compliance period. A major monitoring violation for the surface water treatment rule occurs when at least 90% of the required samples are not taken or results are not reported during the compliance period.

***Organic Contaminants:*** Carbon-based compounds, such as industrial solvents and pesticides. These contaminants generally get into water through runoff from cropland or discharge from factories. Regulations set legal limits on 54 organic contaminants that are to be reported [40 CFR 141.61].

***Radionuclides:*** Radioactive particles which can occur naturally in water or result from human activity. Regulations set legal limits on four types of radionuclides: radium-226, radium-228, gross alpha, and beta particle/photon radioactivity [40 CFR 141]. Violations for these contaminants are to be reported using the following three categories:

***Gross alpha:*** A violation for alpha radiation above MCL of 15 picocuries/liter. Gross alpha includes radium-226 but excludes radon and uranium.

***Combined radium-226 and radium-228:*** A violation for combined radiation from these two isotopes above MCL of 5 pCi/L.

***Gross beta:*** A violation for beta particle and photon radioactivity from man-made radionuclides above 4 millirem/year.

***SDWIS Code:*** Specific numeric codes from the Safe Drinking Water Information System (SDWIS) have been assigned to each violation type included in this report. The violations to be reported include exceeding contaminant MCLs, failure to comply with treatment requirements, and failure to meet monitoring and reporting requirements. Four-digit SDWIS Contaminant Codes have also been included in the chart for specific MCL contaminants.

***Surface Water Treatment Rule (SWTR):*** The SWTR establishes criteria under which water systems supplied by surface water sources, or ground water sources under the direct influence of surface water, must filter and disinfect their water [40 CFR 141, Subpart H]. Violations of the “Surface Water Treatment Rule” are to be reported for the following four categories:

***Monitoring, routine/repeat (for filtered systems):*** A violation for a system’s failure to carry out required tests, or to report the results of those tests.

***Treatment techniques (for filtered systems):*** A violation for a system’s failure to properly treat its water.

***Monitoring, routine/repeat (for unfiltered systems):*** A violation for a system’s failure to carry out required water tests, or to report the results of those tests.

***Failure to filter (for unfiltered systems):*** A violation for a system’s failure to properly treat its water. Data for this violation code will be supplied to the States by EPA.

***Total Coliform Rule (TCR):*** The Total Coliform Rule establishes regulations for microbiological contaminants in drinking water. These

contaminants can cause short-term health problems. If no samples are collected during the one month compliance period, a significant monitoring violation occurs. States are to report four categories of violations:

***Acute MCL violation:*** A violation where the system found fecal coliform or E. coli, potentially harmful bacteria, in its water, thereby violating the rule.

***Non-acute MCL violation:*** A violation where the system found total coliform in samples of its water at a frequency or at a level that violates the rule. For systems collecting fewer than 40 samples per month, more than one positive sample for total coliform is a violation. For systems collecting 40 or more samples per month, more than 5% of the samples positive for total coliform is a violation.

***Major routine and follow-up monitoring:*** A violation where a system did not perform any monitoring. [One number is to be reported for the sum of violations in these two categories.]

***Sanitary Survey:*** A major monitoring violation if a system fails to collect 5 routine monthly samples if sanitary survey is not performed.

***Treatment Techniques:*** A water disinfection process that is required instead of an MCL for contaminants that laboratories cannot adequately measure. Failure to meet other operational and system requirements under the Surface Water Treatment and the Lead and Copper Rules have also been included in this category of violation for purposes of this report.

***Unfiltered Systems:*** Systems that do not need to filter their water before disinfecting it because the source is very clean [40 CFR, Subpart H].

***Violation:*** A failure to meet any state or federal drinking water regulation. Most violations require the water system to perform public notification to its consumers of said violation.

**APPENDIX B**

**LIST OF PUBLIC WATER SUPPLY SYSTEMS  
WITH MCL VIOLATIONS**

## PWS SYSTEMS WITH NITRATE MCL VIOLATIONS: 2000

	PWS NAME	EPA #	Pop.	LOCATION	ZIP	# Vio.
1	ALMENA	2013701	421	ALMENA	67627	4
2	ATTICA	2007703	637	ATTICA	67009	1
3	BAZINE	2013505	315	BAZINE	67516	4
4	BURR OAK	2008906	240	BURR OAK	66936	2
5	CAMP WOOD	2101703	26	ELMDALE	66850	2
6	CASEYS GENERAL STORE	2117342	40	MAIZE	67101	1
7	CLAY CENTER	2002701	4572	CLAY CENTER	67432	1
8	COMANCHE CO RWD#2	2003303	155	COLDWATER	67029	3
9	CONWAY SPRINGS	2019118	1400	CONWAY SPRINGS	67031	3
10	FAIRFIELD H.S. - USD#310	2115514	148	LANGDON	67583	3
11	GAYLORD	2018301	154	GAYLORD	67638	1
12	GOESSEL	2011504	515	GOESSEL	67053	1
13	GOODLAND	2018102	4669	GOODLAND	67735	2
14	GRANT CO FEEDERS MHP	2006708	50	ULYSSES	67880	3
15	GREEN	2002703	142	GREEN	67447	3
16	GREENLEAF	2020106	337	GREENLEAF	66943	1
17	HARPER	2007702	1555	HARPER	67058	1
18	HARPER CO RWD#3	2007704	29	HARPER	67058	3
19	HAYS SUBURBAN ESTATES	2005116	45	HAYS	67601	2
20	HIAWATHA	2001305	3578	HIAWATHA	66434	4
21	IBP, INC.	2105525	2900	HOLCOMB	67851	4
22	INGALLS	2006902	335	INGALLS	67853	3
23	JEFFERSON CO RWD#15	2008721	228	GRANTVILLE	66429	4
24	JEWELL CO RWD#1	2008907	959	ESBON	66941	4
25	LOGAN	2014701	582	LOGAN	67646	4
26	LONG ISLAND	2014703	164	LONG ISLAND	67474	4
27	MAIZE INTERMED. SCHOOL	2117304	870	MAIZE	67101	1
28	PARTRIDGE SCHOOL USD#312	2115515	100	HAVEN	67543	3
29	PRAIRIE VIEW	2014704	146	PRAIRIE VIEW	67664	1
30	PRATT AIRPORT	2115101	40	PRATT	67124	2
31	PRETTY PRAIRIE	2015501	601	PRETTY PRAIRIE	67570	1
32	ROBINSON	2001301	261	ROBINSON	66532	2
33	SALEM VALLEY SCHOOL	2108102	57	COPELAND	67837	2
34	SALEM VALLEY RANCH	2103901	75	OBERLIN	67749	3
35	ST. GEORGE	2014917	434	ST. GEORGE	66535	3
36	STERLING	2015902	2218	STERLING	67579	2
37	SUMNER CO RWD#5	2019101	585	CONWAY SPRINGS	67031	2



38	VIOLA	2017313	225	VIOLA	67149	2
39	WAKEFIELD	2002708	933	WAKEFIELD	67484	1

TOTAL POPULATION AFFECTED: 30,741  
 TOTAL VIOLATIONS: 93  
 TOTAL PWS SYSTEMS: 39

#### **PWS SYSTEMS WITH NITRATE MONITORING VIOLATIONS: 2000**

	<b>PWS NAME</b>	<b>EPA#</b>	<b>POP</b>	<b>LOCATION</b>	<b>ZIP</b>
1	EASTON	2010301	430	EASTON	66020
2	ELLIS CO RWD#6	2005122	400	HAYS	67601
3	ENT. INC-DEDEE#5	2104109	50	MANHATTAN	66502
4	MOSCOW	2018902	258	MOSCOW	67952
5	NORCATUR	2003902	172	NORCATUR	67653
6	RUSSELL CO RWD#1	2016707	64	RUSSELL	67665
7	SILVER OAK	2015515	70	HUTCHINSON	67501
8	THUNDERBIRD MARINA	2106113	25	JUNCTION CITY	66441
9	WHITEHURST MHP	2005536	36	GARDEN CITY	67846

TOTAL POPULATION AFFECTED: 1,505  
 TOTAL PWS SYSTEMS: 9

#### **PWS SYSTEMS WITH SELENIUM MCL VIOLATIONS: 2000**

	<b>PWS NAME</b>	<b>EPA#</b>	<b>POP</b>	<b>LOCATION</b>	<b>ZIP</b>	<b>#VIO</b>
1	GLADE	2014708	102	GLADE	67639	4
2	GOVE	2006303	99	GOVE	67736	1
3	LOGAN	2014701	582	LOGAN	67646	4

TOTAL POPULATION AFFECTED: 783  
 TOTAL VIOLATIONS: 9  
 TOTAL PWS SYSTEMS: 3

#### **PWS SYSTEMS WITH RADIONUCLIDE MCL VIOLATIONS: 2000**

	<b>PWS NAME</b>	<b>EPA#</b>	<b>POP</b>	<b>LOCATION</b>	<b>ZIP</b>	<b>#VIO.</b>
1	CAPALDO WATER ASSOC.	2003715	152	FRONTENAC	66762	1
2	CLOUD COUNTY RWD#1	2002901	450	CONCORDIA	66901	1
3	COOLIDGE	2007501	89	COOLIDGE	67836	1

TOTAL POPULATION AFFECTED: 691

TOTAL VIOLATIONS: 3

TOTAL PWS SYSTEMS 3

### **PWS SYSTEMS WITH TOTAL COLIFORM ACUTE MCL VIOLATIONS: 2000**

	<b>PWS NAME</b>	<b>EPA #</b>	<b>POP</b>	<b>LOCATION</b>	<b>ZIP</b>	<b># Vio.</b>
1	BLITI FR CO RWD#4	2001506	1842	ALIGUSTA	67010	1
2	CASSODAY	2001501	98	CASSODAY	66842	1
3	CHANUTE	2013307	9082	CHANUTE	66720	1
4	COUNTRYSIDE ESTATES	2005107	447	HAYS	67601	1
5	DONIPHAN CO RWD#1	2004305	75	LEONA	66532	1
6	ELGIN	2001901	119	ELGIN	67361	1
7	ENSIGN	2006905	186	ENSIGN	67841	1
8	LINN CO RWD#3	2010708	725	LACYGNE	66040	1
9	MAIZE PIZZA HUT	2117332	25	WICHITA	67209	1
10	MIAMI CO RWD#1	2012102	1536	PAOLA	66071	1
11	SHARON	2000708	256	SHARON	67138	1
12	THUNDERBIRD MARINA	2011109	300	EMPORIA	66801	1

TOTAL POPULATION AFFECTED: 14,691

TOTAL VIOLATIONS: 12

TOTAL PWS SYSTEMS: 12

### **PWS SYSTEMS WITH TOTAL COLIFORM NON-ACUTE MCL VIOLATIONS:2000**

	<b>PWS NAME</b>	<b>EPA #</b>	<b>POP.</b>	<b>LOCATION</b>	<b>ZIP</b>	<b>#VIO</b>
1	ATCHISON CO. RWD#4	2000501	310	VALLEY FALLS	66088	1
2	BELLE PLAINE	2019115	1698	BELLE PLAINE	67013	1
3	BROWN CO RWD#1	2001304	709	FAIRVIEW	66525	1
4	BURR OAK	2008906	240	BURR OAK	66936	1
5	CANTON	2011313	767	CANTON	67428	1
6	CHEROKEE CO-OP WATER	2012514	28	COFFEYVILLE	67337	1
7	CLOUD CERAMICS	2102908	48	CONCORDIA	66901	1
8	COOLIDGE	2007501	89	COOLIDGE	67836	5
9	COTTONWOOD MHP	2005533	79	HOLCOMB	67851	3
10	COUNTRYVIEW MHP	2005121	75	HAYS	67601	1
11	D & W WATER CO.	2016101	81	MANHATTAN	66502	3
12	DONIPHAN CO RWD#2	2004303	167	BENDENA	66008	1
13	DONIPHAN CO RWD#3	2004301	437	SEVERANCE	66087	1
14	ELLIS CO. RWD#1	2005118	209	SCHOENCHEN	67667	1
15	HAYSVILLE	2017322	8683	HAYSVILLE	67060	1
16	JACKSON CO RWD#2	2008506	87	DELIA	66418	1
17	MIAMI CO RWD#2	2012101	8631	HILLSDALE	66036	1
18	NEWBURY EXTENSIOIN	2019709	60	PAXICO	66526	1
19	PARTRIDGE GRADE #312	2005902	100	HAVEN	67543	1
20	RANTOUL	2005902	238	RANTOUL	66079	1
21	RED BUD LAKE ASSOC.	2004111	56	ABILENE	67410	1
22	RUSH CO RWD#1	2016509	150	MCCRACKEN	67556	2
23	SCRANTON	2013911	714	SCRANTON	66537	2
24	SH. CO. RWD#2(10&11)	2017713	432	SILVER LAKE	66539	1
25	SHEPARDS GATE BOY HM	2116907	50	ASSARIA	67416	1
26	ST. GEORGE	2014917	434	ST. GEORGE	66535	1
27	STUCKEY'S PECAN SHOPPE	2119301	0	BREWSTER	67732	1
28	TIMKEN	2016504	82	TIMKEN	67575	1
29	VALLEYWOOD SUB.	2016129	240	MANHATTAN	66502	1
30	WALNUT GROVE/BRENSING	2014923	520	MANHATTAN	66502	1
31	WALNUT GROVE/BROOKS	2014916	404	MANHATTAN	66502	1
32	WALTHERS OIL	2120103	0	CUBA	66940	2
33	WESTERN ACRES MHC	2015506	60	HUTCHINSON	67501	1

TOTAL POPULATION AFFECTED: 25,878  
 TOTAL VIOLATIONS: 44  
 TOTAL PWS SYSTEMS: 33

**PWS SYSTEMS WITH TOTAL COLIFORM MAJOR MONITORING VIOLATIONS:2000**

	<b>PWS NAME</b>	<b>EPA #</b>	<b>Pop.</b>	<b>LOCATION</b>	<b>ZIP</b>	<b># Vio.</b>
1	ALL SEASONS CAMPGROUND	2117326	0	GODDARD	67052	11

2	ALLEN CO RWD#4	2000112	48	IOLA	66749	1
3	ALLEN CO. RWD#6	2000107	48	IOLA	66749	1
4	ATCHISON CO RWD#4	2000501	310	VALLEY FALLS	66088	1
5	BARTLETT	2009902	103	BARTLETT	67332	1
6	BUTLER CO RWD#4	2001506	1842	AUGUSTA	67010	1
7	CAMP WOOD (YMCA)	210703	26	ELMDALE	66850	1
8	CASEY'S GENERAL STORE#1869	2003704	40	MAIZE	67101	1
9	CHICOPEE RURAL WTR BOARD	2003704	418	PITTSBURG	66762	1
10	COUNTRYVIEW MHP	2015520	50	HUTCHINSON	67052	1
11	D & W WATER CO.	2016101	81	MANHATTAN	66502	1
12	DEDEE'S I-70	2001901	0	MANHATTAN	66502	1
13	ELGIN	2001901	119	ELGIN	67361	1
14	ELREKA SCHOOL-#312	211517	96	HAVEN	67543	1
15	ENT. INC. DBA DEDEE#5	2104109	50	ABILENE	67401	1
16	EVEREST	2001308	316	EVEREST	66424	1
17	HAMILTON	2007303	320	HAMILTON	66853	2
18	HAVENSVILLE	2014903	135	HAVENSVILLE	66432	1
19	LABETTE CO RWD#1	2009907	140	OSWEGO	67356	1
20	LABETTE CO RWD#4	2009909	120	OSWEGO	67356	1
21	LAKESIDE UNITED METHODIST	2117106	0	SCOTT CITY	67871	1
22	LEAVENWORTH CO RWD#10	2010315	499	LINWOOD	66052	1
23	LONGFORD	2002706	64	LONGFORD	67458	1
24	MARION CO RWD#2	2011512	500	MARION	66861	1
25	MCPHERSON CO RWD#3	2011306	28	MCPHERSON	67460	1
26	MITCHELL CO RWD#1	2012302	345	GLEN ELDER	67446	1
27	NATIONAL BEEF PACKING	2105718	1000	DODGE CITY	67801	1
28	PARK HILLS COUNTRY CLUB	2115109	0	PRATT	67124	1
29	PARTRIDGE GRADE SCL-#312	2115515	100	HAVEN	67543	1
30	PRESTO OIL #15	2105533	0	GARDEN CITY	67846	2
31	PRINCETON	2005912	298	PRINCETON	66078	1
32	RIVERSIDE WATER CO.	2005541	67	GARDEN CITY	67846	2
33	RUSSELL CO RWD#1	2016707	64	RUSSELL	67665	1
34	SPRING LAKE RESORT	2107902	60	HALSTEAD	67056	1
35	STUCKEY'S DQ #192	2106303	0	GRINNELL	67738	1
36	STUCKEY'S PECAN SHOPPE	2119301	0	BREWSTER	67732	1
37	THUNDERBIRD MARINA	2106113	25	JUNCTION CITY	66441	5
38	TIMKEN	2016504	82	TIMKEN	67575	4
39	WALLACE CO RWD#1	2019901	200	WESKAN	67762	12
40	WHEATSTATE CAMP	2101504	0	AUGUSTA	67010	1
41	WINDOM	2011314	135	WINDOM	67491	2
42	CLAY CO RWD#2	2002710	950	CLAY CENTER	67432	1

43	DONIPHAN CO RWD#2	2004303	167	BENDENA	66008	1
----	-------------------	---------	-----	---------	-------	---

TOTAL POPULATION AFFECTED: 8,846  
 TOTAL VIOLATIONS: 75  
 TOTAL PWS SYSTEMS: 43

## **PWS SYSTEMS WITH TOTAL COLIFORM MINOR VIOLATIONS:2000 MONITORING AND REPORTING VIOLATIONS**

	PWS NAME	EPA#	POP.	LOCATION	ZIP	#VIO.
1	ALL SEASONS CAMPGROUND	2117326	0	GODDARD	67052	1
2	ANDERSON CO RWD#4	2000303	642	WESTPHALIA	66093	1
3	ANDERSON CO RWD#5	2000306	2250	COLONY	66015	1
4	ANDERSON CO RWD#6	2000311	1065	MOUND CITY	66056	1
5	BALDWIN CITY	2004510	3428	BALDWIN	66006	1
6	BEATTIE	2011712	218	BEATTIE	66406	1
7	BED ROCK MHP	2006707	45	ULYSSES	67880	1
8	BISON	2016501	197	BISON	67520	1
9	BLUE RAPIDS	2011710	1106	BLUE RAPIDS	66411	1
10	BROWN CO RWD#2	2001312	724	POWHATTAN	66527	1
11	BURDEN	2003503	509	BURDEN	67019	1
12	CLAY CO RWD#2	2002710	950	CLAY CENTER	67432	1
13	COUNTRY STORE	2117343	0	MAIZE	67101	3
14	COUNTRY VIEW MHP	2005121	75	HAYS	67601	1
15	DEDEE'S I-70	2116111	0	MANHATTAN	66502	6
16	DELIA	2008507	158	DELIA	66418	1
17	DICKINSON CO RWD#2	2004106	1560	CARLTON	67448	1
18	DONIPHAN CO RWD#1	2004305	75	LEONA	66532	1
19	DOUGLASS	2001510	1887	DOUGLASS	67039	1
20	EASTON	2010301	430	EASTON	66020	1
21	ELGIN	2001901	119	ELGIN	67361	2
22	ENSIGN	2006905	186	ENSIGN	67841	1
23	ENT, INC. DBA DEDEE#5	2104109	50	ABILENE	67401	1
24	ERIE	2013310	1300	ERIE	66733	1
25	FRANKLIN CO RWD#1	2005915	600	OTTAWA	66067	1
26	GALESBURG	2013308	164	GALESBURG	66740	2
27	GARDEN SPOT RENTALS	2105517	72	GARDEN CITY	67846	1
28	GRENOLA	2004904	263	GRENOLA	67346	1
29	HAYS SUBURBAN ESTATES	2005116	45	HAYS	67601	1
30	HILLSBORO	2011505	3142	HILLSBORO	67063	1

31	HOWARD	2004901	816	HOWARD	67349	1
32	HOYT	2008501	533	HOYT	66440	3
33	JACKSON CO RWD#2	2008506	87	DELIA	66418	2
34	JEFFERSON CO RWD#15	2008721	228	GRANTVILLE	66429	1
35	JENNINGS	2003904	153	JENNINGS	67643	1
36	JOHNSTON TRAILER CT	2006116	25	JUNCTION CITY	66441	3
37	JUNCTION CITY	2006108	17659	JUNCTION CITY	66441	1
38	KINGMAN CO RWD#1	2009502	250	MURDOCK	67111	1
39	KING'S CAMP	2117330	0	GODDARD	67052	2
40	LABETTE CO RWD#4	2009909	120	OSWEGO	67356	1
41	MID-CONTINENT INDUS. PARK	2117315	600	WICHITA	67226	1
42	MIDWAY USA TRUCKSTOP	2117505	100	LIBERAL	67901	3
43	MORLAND	2006501	234	MORLAND	67650	1
44	MUSCOTAH	2000508	194	MUSCOTAH	66058	1
45	NICODEMUS	2006505	32	BOGUE	67625	1
46	NORCATUR	2003902	172	NORCATUR	67653	2
47	NORWICH	2009505	460	NORWICH	67118	2
48	PAWNEE ROCK	200916	352	PAWNEE ROCK	67567	1
49	PEABODY	2011509	1371	PEABODY	66866	1
50	PLAINS	2011903	957	PLAINS	67869	1
51	PRESTO OIL #15	2105533	0	GARDEN CITY	67846	2
52	RANTOUL	2005902	238	RANTOUL	66079	1
53	ROLLING HILLS LANDOWNERS	2017505	62	LIBERAL	67901	1
54	RUSSELL CO RWD#4	2016705	90	RUSSELL	67665	1
55	SANTA FE TRAIL CENTER	2114501	0	LARNED	67550	1
56	SCRANTON	2013911	714	SCRANTON	66537	1
57	SH. CO. RWD#3	2017710	3500	TOPEKA	66617	1
58	SPRING LAKE RESORT	2107902	60	HALSTEAD	67056	1
59	ST. JOSEPH ELEM. SCHOOL	2115513	80	ANDALE	67001	1
60	ST. PAUL'S LUTHERAN SCHL	2115519	50	HAVEN	67543	2
61	STAGG HILL GOLF CLUB	2116114	0	MANHATTAN	66502	6
62	STUCKEY'S DQ #192	2106303	0	GRINNELL	67738	3
63	STUCKEY'S PECAN SHOPPE	2119301	0	BREWSTER	67732	3
64	SUPPESVILLE COASTAL	2119102	30	MILTON	67106	2
65	THORNDALE ACRES	2011104	115	EMPORIA	66801	1
66	TIMKEN	2016504	82	TIMKEN	67575	2
67	WALTHERS OIL	2120103	0	CUBA	66940	1
68	WEDGEWOOD GOLF COURSE	2107910	45	HALSTEAD	67056	2
69	WEST HILLS SUBDIVISION	2015519	50	NICKERSON	67561	2
70	WILSON CO RWD#4	2020504	293	NEODESHA	66757	1
71	WILSON CO RWD#5	2020507	275	FREDONIA	66736	1

72	WOODBINE	2004117	196	WOODBINE	67492	3
73	RUSH CO RWD#1	2016509	150	MCCRACKEN	67556	1

TOTAL POPULATION AFFECTED: 51,633  
 TOTAL VIOLATIONS: 109  
 TOTAL PWS SYSTEMS: 73

## **SURFACE WATER TREATMENT TREATMENT TECHNIQUE VIOLATIONS: 2000**

	<b>PWS NAME</b>	<b>EPA#</b>	<b>POP.</b>	<b>LOCATION</b>	<b>ZIP</b>	<b>#VIO.</b>
1	BUFFALO	2020511	288	BUFFALO	66717	2
2	EL DORADO	2001511	13078	EL DORADO	67042	2
3	ELK CITY	2012520	326	ELK CITY	67344	2
4	ELLSWORTH CO. RWD#1	2005309	2626	ELLSWORTH	67439	1
5	ESKRIDGE	2019703	482	ESKRIDGE	66423	3
6	LACYGNE	2010703	1229	LACYGNE	66040	1
7	LONGTON	2004903	388	LONGTON	67352	1
8	PARKER	2010706	277	PARKER`	66072	1
9	PARSONS	2009914	11177	PARSONS	67357	1
10	SALINA	2016914	42303	SALINA	67401	1
11	SEDAN	2001903	1276	SEDAN	67361	1
12	SEVERY	2007308	385	SEVERY	67137	1

TOTAL POPULATION AFFECTED: 73,835  
 TOTAL VIOLATIONS: 17  
 TOTAL PWS SYSTEMS: 12

## **PWS SYSTEMS WITH SURFACE WATER TREATMENT VIOLATIONS: 2000 MONITORING, ROUTINE/REPEAT**

	<b>PWS NAME</b>	<b>EPA#</b>	<b>POP.</b>	<b>LOCATION</b>	<b>ZIP</b>	<b>#VIO.</b>
1	EL DORADO	2001511	13078	EL DORADO	67042	1
2	ELLSWORTH CO RWD#1	2005309	2626	ELLSWORTH	67439	1
3	GRENOLA	2004904	263	GRENOLA	67346	1
4	HERINGTON	2004102	3236	HERINGTON	67449	1
5	PARKER	2010706	277	PARKER	66072	1

6	RUSSELL	2016703	4509	RUSSELL	67665	2
7	UNIVERSITY PARK	2016103	109	MANHATTAN	66502	1

TOTAL POPULATION AFFECTED: 24,098  
TOTAL VIOLATIONS: 8  
TOTAL PWS SYSTEMS: 7

**PWS SYSTEMS WITH LEAD & COPPER VIOLATIONS: 2000  
FOLLOW-UP or ROUTINE LEAD/COPPER TAP MONITORING VIOLATIONS**

	PWS NAME	EPA#	POP.	LOCATION	ZIP	#VIO.
1	CHAUTAUQUA CO. RWD#1	2001905	155	SEDAN	67361	1
2	CHEROKEE CO RWD#1	2002111	575	CRESTLINE	66728	1
3	COUNTRYSIDE EST MHP	2005107	447	HAYS	67601	1
4	COUNTRY VIEW MHP	2005121	75	HAYS	67601	1
5	DONIPHAN CO RWD#3	2004301	437	SEVERANCE	66087	1
6	ELLIS CO RWD#6	2005122	400	HAYS	67601	1
7	FARMLAND BEEF-LIBERAL	2117502	2000	LIBERAL	67901	1
8	FONTANA	2012107	159	FONTANA	66026	1
9	GALESBURG	2013308	164	GALESBURG	66740	1
10	GODDARD	2017325	1804	GODDARD	67052	1
11	H-PARK MHP	2005538	21	GARDEN CITY	67846	1
12	LEAVENWORTH CO RWD#5	2010318	740	LEAVENWORTH	66048	1
13	MID-CONTINENT IND. PARK	2117315	600	WICHITA	67226	1
14	PARADISE	2016708	65	PARADISE	67658	1
15	PRAIRIE BAND POTT.	0000012	450	MAYETTA	66509	1
16	PRESCOTT	2010705	315	PRESCOTT	66767	1
17	RUSH CO RWD#1	2016509	150	MCCRACKEN	67556	1
18	SALEM VALLEY CHRIST. SCH.	2108102	57	COPELAND	67837	1
19	TIMKEN	2016504	82	TIMKEN	67575	1
20	VALLEYWOOD SUBDIV.	2016129	240	MANHATTAN	66502	1
21	WALLACE CO RWD#1	2019901	200	WESKAN	67762	1
22	WEIR	2002114	776	WEIR	66781	1

TOTAL POPULATION AFFECTED: 9,912  
TOTAL VIOLATIONS: 22  
TOTAL PWS SYSTEMS: 22

**TREATMENT INSTALLATION VIOLATIONS: 2000**

PWS NAME	EPA#	POP.	LOCATION	ZIP	#VIO
----------	------	------	----------	-----	------



1	FONTANA	2012107	159	FONTANA	66026	1
2	MULLINVILLE	2009701	292	MULLINVILLE	67109	1
3	VALLEYWOOD SUB.	2016129	240	MANHATTAN	66502	1

TOTAL POPULATION AFFECTED: 691  
 TOTAL VIOLATIONS: 3  
 TOTAL PWS SYSTEMS: 3

#### **TREATMENT RECOMMENDATION VIOLATIONS: 2000**

	<b>PWS NAME</b>	<b>EPA#</b>	<b>POP.</b>	<b>LOCATION</b>	<b>ZIP</b>	<b>#VIO.</b>
1	COWLEY CO RWD#7	2003516	30	ROCK	67131	1
2	JEWELL CO RWD#1	2008907	959	ESBON	66941	1
3	SCRANTON	2013911	714	SCRANTON	66537	1

TOTAL POPULATION AFFECTED: 1,703  
 TOTAL VIOLATIONS: 3  
 TOTAL PWS SYSTEMS: 3

#### **PUBLIC EDUCATION VIOLATIONS: 2000**

	<b>PWS NAME</b>	<b>EPA #</b>	<b>Pop.</b>	<b>LOCATION</b>	<b>ZIP</b>	<b># Vio.</b>
1	COWLEY CO #7	2003516	30	ROCK	67131	1
2	HOXIE	2017901	1214	HOXIE	67740	1
3	MULLINVILLE	2009701	292	MULLINVILLE	67109	1
4	SHALLOW WATERS - USD#466	2117103	165	SCOTT CITY	67871	1

TOTAL POPULATION AFFECTED: 1,701  
 TOTAL VIOLATIONS: 4  
 TOTAL PWS SYSTEMS: 4

**APPENDIX C**

**LIST OF KDHE CONTACTS  
FOR ADDITIONAL INFORMATION**

For additional copies of this report or questions regarding drinking water, please contact KDHE's Bureau of Water or any of the following:

KDHE - BUREAU OF WATER  
PUBLIC WATER SUPPLY SECTION [www.kdhe.state.ks.us](http://www.kdhe.state.ks.us)  
FORBES FIELD, BUILDING #283  
TOPEKA, KANSAS 66620

Director, Bureau of Water  
KARL MUELDENER.....(785) 296-5500

Public Water Supply Section Chief  
DAVE WALDO.....(785) 296-5514

Compliance and Data Management Unit Chief  
DARREL PLUMMER.....(785) 296-5523

Engineering and Permits Unit Chief  
IRAJ POURMIRZA.....(785) 296-5539

Engineering and Permits  
DAN CLAIR.....(785) 296-5516

Bacteriological, Surface Water Treatment, Radionuclides  
JEAN HERROLD.....(785) 296-5518

Lead and Copper, Trihalomethanes  
RON CRAMER.....(785) 296-5946

Inorganics, Volatile and Synthetic Organic Compounds, Nitrate,  
PATTI CROY.....(785) 296-3016

Data Management  
ELLAN SPIVEY.....(785) 296-6434